

# Z-595 EHT RFID Electronic Furniture Lock

## with EM-Marine & HID ProxCard II & Atmel (T5557) reader (125 kHz)

### and standalone controller

## User Manual

### 1. OVERVIEW

**Z-595 EHT** electronic lock is a reader for contactless keys with a controller powered by one 9V PP3/E battery. One battery should suffice for 20,000 openings or 2.5 years in stand-by mode. This lock has unique enclosure design and installation method, allowing it to be mounted on any metal or wooden furniture, and get connected within 5 minutes.

Locking part of **Z-595 EHT** is fully identical in dimensions with a CAM LOCK mechanical lock, which enables installation of **Z-595 EHT** into any opening made for that lock.

Compact in size, supporting both single-user and multi-user modes, easy in installation, programming and servicing, this lock is a perfect Access Control solution for various storage places like work clothes locker, mailboxes, office furniture, trade equipment.

**Z-595 EHT** can operate in five different modes:

- **Gym Mode** keys are not tied to locks. Any key can open and close any free locker.
- **Logic Mode** keys are not tied to locks. Any key can open and close any free locker. The number of used locker and battery levels are stored into keys. This is convenient when the client forgets which locker he used. Can limit the allowed number of lockers per client (1 to 15). Computerized journaling of attendance times, reports, software administrators audit.
- **General Mode** a typical lock controller operation: only the key(s) stored in the lock's memory (maximum 24) can open that lock.
- **Safe Deposit Box Mode** the lock emulates safe deposit box operation. To open the lock, all the keys stored in controller database (maximum 24) must be presented to it, one after another.
- **Custom Mode** can be designed for your specific needs. We will issue custom firmware, to be downloaded into the lock via an Z-2 USB RF-1996 adapter.

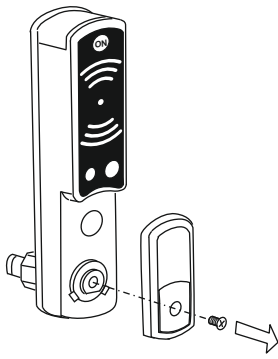
### Z-595 EHT Operational Modes Comparison Table.

Feature	Operational Modes				
	Gym	Logic*	General	Safe Deposit Box	Custom
Any key can open/close any locker	+	+			+
Limit on lockers number that can be taken by one bracelet. The operator defines the maximum lockers number for one bracelet (1...15)		+			+
Logging of free/taken lockers through time		+			+
Logging the gym attendance times		+			+
Information Kiosk (tells the client their locker number, if forgotten)		+			+
Battery charge level stored into bracelet		+			+
Encryption, protection against bracelet cloning		+			+
Locks setup and further use without a PC	+		+	+	+

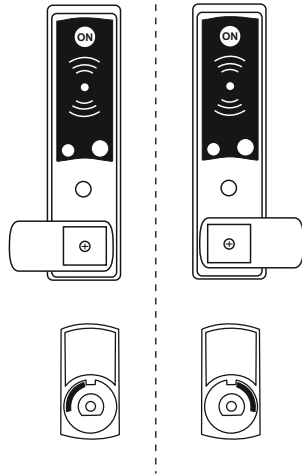
Note: **Logic Mode** requires special Atmel (T5557) keys and **Lock Manager** software.

2. MOUNTING

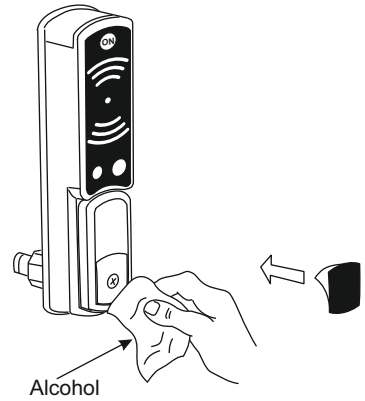
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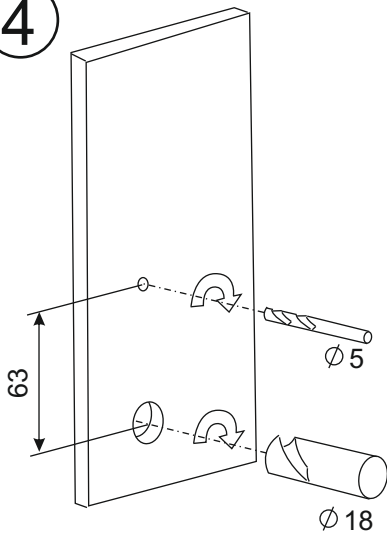
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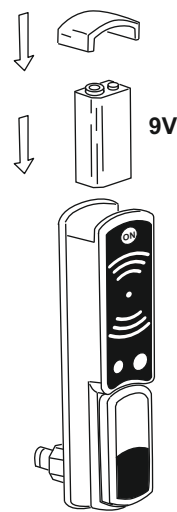
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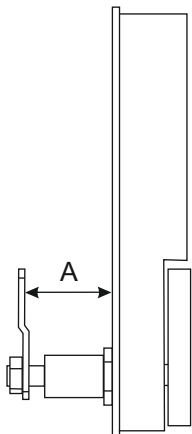
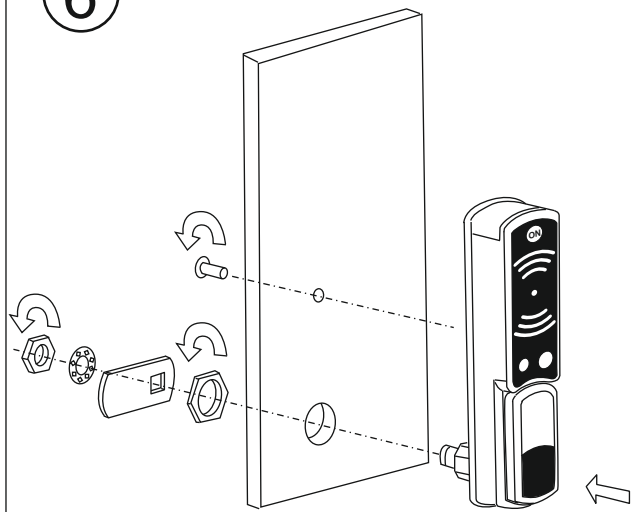
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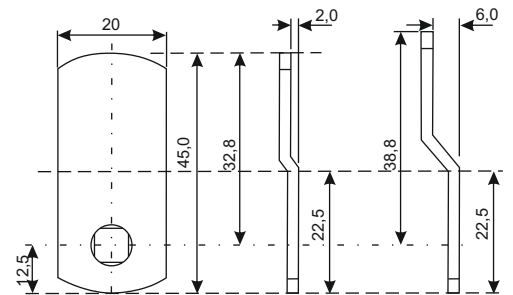
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6



A (mm)	34	30	26	20



### 3. SPECIFICATIONS

- Working Frequency: ..... 125 kHz;
- Keys standards: ..... EM-Marine, Atmel (T5557), HID ProxCard II;
- Maximum number of keys: ..... Normal - 24; Master - 4;
- Power: ..... One 9V PP3/E type battery;
- NVRAM to store settings: ..... Present;
- Standby consumption current: .....  $\leq 3 \mu\text{A}$ ;
- Audio-visual status indication: ..... buzzer, bicoloured LED.
- Operating temperature range: ..... 0...40 °C;
- Case material: ..... silumin, steel, ABS plastic;
- Colour: ..... Silver;
- Dimensions, mm: ..... 150 x 40 x 27;

### 4. INITIAL POWER-UP, ADDING MASTER KEYS

In the factory settings, **Z-595 EHT** is set to Installer mode, its handle rotates freely, no Master or Normal keys stored in memory.

To create Master keys, the initial power-up condition must be met: no keys in lock's memory. Minding the polarity, please install a 9V PP3 type battery into lock's battery compartment. When powered up, the lock issues short beeps and the LED blinks green for 16 s this shows that the lock's memory is empty and the lock is ready to create Master key(s).

While the beeps are still sounding (within 16 s), approach the reader with a key, it will store it in lock's memory as a Master key. Short beeps will stop, confirming that the first Master key was successfully stored. To add more Master keys (up to 4 total), please approach the keys to be programmed to the lock, one after another. Each key approach is acknowledged by the reader with a short beep and a green LED flash. The Add Master Keys mode ends automatically in 16 s after the last key touch, and the reader informs about the exit by five short beeps and a red LED flash.

If no keys could be stored as Master, repeat the power-up sequence again. This Master key creation sequence can only be performed if the lock's memory is empty. Later, you will use the created Master key(s) for programming.

### 5. SELECTION OF OPERATIONAL MODE BY 'ON' BUTTON

Note: Cannot select an operational mode without a Master key.

The lock supports four pre-customised operational modes:

- **Gym mode** allows not to tie keys to certain locks. Any key can open/close any free locker.
- **Logic mode** allows not to tie keys to certain locks. Any key can open/close any free locker. This mode enables storing the number of used locker and its battery level into the key. This is convenient when clients forget which locker they have used. Counts how many lockers are used this key (1...15). Computerized logging of attendance times, report generation, auditing the software operators.
- **General mode** traditional lock controller operation: only the keys in lock's database (max. 24) can open the locker. Operation principle: first key approach pops out the latch, second approach draws the latch back in.
- **Safe Deposit Box mode** safe deposit box mode emulation. To open the lock, all the keys in lock's controller database (max. 24) need to be presented to the lock, one after another.

At the factory, Gym mode is pre-selected. It is activated straight after adding the Master key(s). To select a different operational mode, perform the following steps:

- Disconnect power (extract the battery).
- Press and hold ON button.
- Connect power (insert the battery) and only after that, release ON button.
- After  $\leq 5$  s, press ON button shortly once. The lock will respond with two audio and visual signals. The lock is now in **Logic Mode**.
- Press ON button shortly once. The lock will respond with three audio and visual signals. It is now in **General Mode**.
- Press ON button shortly once. The lock will respond with four audio and visual signals. It is now in **Safe Deposit Box Mode**.
- Press ON button shortly once. The lock will respond with one audio and visual signals. It is now in **Gym Mode**.
- To confirm the currently selected mode or retain the previously selected mode, just do nothing for 6 s. After these 6 s, exit from mode selection will be confirmed by audio and visual signal.

## 6. GYM MODE.

Note: Cannot select an operational mode without a Master key.

Rules of operations for Gym mode:

- Opening the lock is possible with the key stored when door was locked.
- Lock closing. Press ON button, then while the LED is blinking red and green (12 s), touch the lock reader with a key. If the key is valid, the LED shines solid green for 6 s; during this time, turn the lock handle into closed position. After lock is closed, the LED goes off.
- Lock opening. Press ON button, then while the LED is blinking red and green (12 s), touch the lock reader with the same key used when closing the lock. The LED shines solid green for 6 s; during this time, turn the lock handle into open position. After lock is opened, the LED goes off and the key is erased from lock's memory. The lock is ready for step 1 again. If a key not stored in lock's memory was attempted at its reader, a beep sounds and the LED flashes red.

Action	Sound	LED	Handle	What for
<b>Opening/Closing the lock with a User key</b>				
Default state	None	None	OPEN	Standby Mode
Press ON button	●	R and G blink	OPEN	Waiting 12 s for the User key to be stored into memory
Approaching a key	●	G	Turn into CLOSED	Closing the lock
Press ON button, approach a wrong key	●●●	R blink	CLOSED	Wrong key indication
Press ON button, approach a correct User key	●	G	Turn into OPEN	Opening the lock, erasing the User key from memory, standby for next User key
<b>Master key override, KEEPING the User key in memory</b>				
Door closed. Press ON button, approach a Master key	●●●	R blink	Turn into OPEN	Master key override: opening the lock
Within 10 s, turn the handle into closed position	●●●	R blink	Turn into CLOSED	Master key override: closing the lock, User key remains in memory
<b>Master key override, ERASING the User key from memory</b>				
Door closed. Press ON button, approach a Master key	●●●	R blink	Turn into OPEN	Master key override: opening the lock.
Wait 10 s	●●●	R blink	OPEN	Master key override: erasing the User key from memory. Standby for next User key.

**Legend:** ● - beep once, ●●● - multiple beeps, G LED flashes green once, R LED flashes red once, "blink" blinking multiple times.

## 7. LOGIC MODE

**Note 1:** Cannot select an operational mode without a Master key.

**Note 2:** Logic mode works only in cooperation with Lock Manager software and Z-2 USB RF-1996 adapter.

**Note 3:** Logic mode works only with Atmel (T5557) keys.

Rules of operations for Logic mode:

1) Opening the lock is possible with the key stored when the door was locked.

2) Lock closing. Press ON button, then while the LED is blinking red and green (12 s), touch the lock reader with a key. If the key is suitable, the LED shines solid green for 6 s; during this time turn the lock handle into closed position. After the lock is closed, the LED goes off.

3) Lock opening. Press ON button, then while the LED is blinking red and green (12 s), touch the lock reader with the same key used when closing the lock. The LED shines solid green for 6 s; during this time turn the lock handle into open position. After the lock is opened, the LED goes off, and the key is erased from lock's memory. The lock is ready for step 1 again. If a key not stored in memory was attempted at the reader, a beep sounds and the LED flashes red.

Action	Sound	LED	Handle	What for
<b>Open/Close the lock with a User key</b>				
Default state	None	None	OPEN	Standby Mode
Press ON button	●	R / G blink	OPEN	Waiting 12 s for a User key to be stored into memory
Approach a key	●	G	Turn into CLOSED	Closing the lock; locker number, lock battery charge info, used lockers number limit – stored into User key.
Press ON button, approach a wrong key	●●●	R blink	CLOSED	Wrong key indication
Press ON button, approach a correct User key	●	G	Turn into OPEN	Opening the lock, erase key from memory, standby for next User key
<b>Master key override, KEEPING the User key in memory</b>				
Door closed. Press ON button, approach a Master key	●●●	R blink	Turn into OPEN	Master key override: opening the lock
Within 10 s, turn handle into closed position	●●●	R blink	Turn into CLOSED	Master key override: closing the lock, User key remains in memory
<b>Master key override, ERASING the User key from memory</b>				
Door closed. Press ON button, approach a Master key	●●●	R blink	Turn into OPEN	Master key override: opening the lock.
Wait 10 s	●●●	R blink	OPEN	Master key override: erasing the User key from memory. Standby for next User key.

## 8. GENERAL MODE

Note: Cannot select an operational mode without a Master key.

Rules of operation for **General** mode.

- 1) Opening the lock is possible by the key(s) stored in lock's memory.
- 2) Lock closing. Press ON button, then while the LED is blinking red and green (12 s), touch the lock reader with a key stored in memory. If the key is valid, the LED shines solid green for 6 s; during this time turn the lock handle into closed position. After lock is closed, the LED goes off. If a key not stored in memory was attempted at the reader, a beep sounds and the LED flashes red.
- 3) Lock opening. Press ON button, then while the LED is blinking red and green (12 s), touch the lock reader with a key stored in memory. The LED shines solid green for 6 s; during this time turn the lock handle into open position. After lock is opened, the LED goes off. The lock is ready for step 1 again. If a key not stored in memory was attempted at the reader, a beep sounds and the LED flashes red.

Action	Sound	LED	Handle	What for
<b>Adding User keys into lock's memory</b>				
Default state	None	None	Free while no User keys in memory	Standby Mode
Press ON button	●	G / R blink	Free while no User keys in memory	Lock activation (12 s)
Approach the Master key 1 <sup>st</sup> time	●●●	R blink	Free while no User keys in memory	Entering User key editing mode.
Approach the Master key 2 <sup>nd</sup> time	●●●	R blink	Free while no User keys in memory	Entering User key editing mode.
Approach the Master key 3 <sup>rd</sup> time	●	R blink	Free while no User keys in memory	Entering User key editing mode.
Approach 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> ... (? 24) keys	●	G	Free while no User keys in memory	Entering User key editing mode.
Approach the Master key or waiting 5 s	●●●	R blink	Blocked	Exiting Add User Key mode into lock's memory
<b>Erasing All User keys from lock's memory</b>				
Default state	None	None	OPEN/CLOSED	Standby Mode
Press ON button	●	G / R blink	OPEN/CLOSED	Lock activation (12 s)
Approach the Master key 1 <sup>st</sup> time	●●●	R blink	OPEN	Entering User key editing mode.
Approach the Master key 2 <sup>nd</sup> time	●●●	R blink	OPEN	Entering User key editing mode.
Approach the Master key 3 <sup>rd</sup> time	●	R blink	OPEN	Entering User key editing mode.
Press ON button once	●	R blink	OPEN	Erasing all User keys from lock's memory
Approach the Master key or wait 5 s	●●●	R blink	Blocked	Exiting Erase All User keys from lock's memory
<b>Master key override, opening the lock</b>				
Default state	None	None	OPEN/CLOSED	Standby Mode
Press ON button	●	G / R blink	OPEN/CLOSED	Lock activation (12 s)
Approaching Master key once	●●●	R blink	Turn to OPEN	Turn handle into open state
Wait 10 s	●●●	R blink	Blocked	Standby mode

## 9. SAFE DEPOSIT BOX MODE

**Note:** Cannot select an operational mode without a Master key.

Rules of operation for Safe Deposit Box mode.

- 1) Opening the lock is possible by ALL the key(s) stored in lock's memory, approached to the lock's reader one by one.
- 2) Lock closing. Turn the handle to closed position (no keys to approach or ON button to press).
- 3) Lock opening. Press ON button, then while the LED is blinking red and green (12 s), touch the lock reader with ALL the keys stored in memory, one after another. The LED shines solid green for 6 s; during this time turn the lock handle into open position. After lock is opened, the LED goes off. The lock is ready for Step 1 again. If a key not stored in memory was attempted at the reader, a beep sounds and the LED flashes red.

Action	Sound	LED	Handle	What for
<b>Adding User keys into lock memory</b>				
Default state	None	None	Free while no User keys in memory	Standby Mode
Press ON button	●	G / R blink	Free while no User keys in memory	Lock activation (12 s)
Approach the Master key 1 <sup>st</sup> time	●●●	R blink	Free while no User keys in memory	Entering User key editing mode.
Approach the Master key 2 <sup>nd</sup> time	●●●	R blink	Free while no User keys in memory	Entering User key editing mode.
Approach the Master key 3 <sup>rd</sup> time	●	R blink	Free while no User keys in memory	Entering User key editing mode
Approach 1 <sup>st</sup> , 2 <sup>nd</sup> , 3 <sup>rd</sup> ... (? 24) keys	●	G	Free while no User keys in memory	Storing User keys into lock's memory
Approach Master key or wait 5 s	●●●	R blink	Blocked	Exiting Add User Keys mode into lock's memory
<b>Erasing All User keys from lock's memory</b>				
Default state	None	None	OPEN/CLOSED	Standby Mode
Press ON button	●	G / R blink	OPEN/CLOSED	Lock activation (12 s)
Approach the Master key 1 <sup>st</sup> time	●●●	R blink	OPEN	Entering User key editing mode.
Approach the Master key 2 <sup>nd</sup> time	●●●	R blink	OPEN	Entering User key editing mode.
Approach the Master key 3 <sup>rd</sup> time	●	R blink	OPEN	Entering User key editing mode
Press ON button once	●	R blink	OPEN	Erasing all User keys from lock's memory
Approach the Master key or wait 5 s	●●●	R blink	Blocked	Exiting Erase All User Keys from lock's memory
<b>Master key override, opening the lock</b>				
Default state	None	None	OPEN/CLOSED	Standby Mode
Press ON button	●	G / R blink	OPEN/CLOSED	Lock activation (12 s)
Approach the Master key once	●●●	R blink	Turn to OPEN	Turn handle into open state
Wait 10 s	●●●	R blink	Blocked	Standby mode

## 10. RESET TO FACTORY DEFAULTS

This function resets the device to factory (initial) state. All Master and Normal keys are erased, the currently selected operational mode is cancelled.

To reset to factory defaults, please perform the following steps:

- a. Disconnect the power;
- b. Push and hold the ON button;
- c. Connect the power (re-insert the battery). Continue holding down the ON button for 16 s. The audio and visual signals will appear as follows:
  - when powered on, 1 long beep and red LED,
  - at 6 s, 1 beep and red LED,
  - at 16 s, long beep sequence and red LED.
- d. The beep and visual signal at 16 s denote that the lock has been reset to factory defaults.
- e. Release ON button, in 3 s the lock issues short beeps and the LED blinks green for 16 s. This indicates that lock's memory is empty and it is ready to store Master key(s). (See also chapter **INITIAL POWER-UP, ADDING MASTER KEYS**).

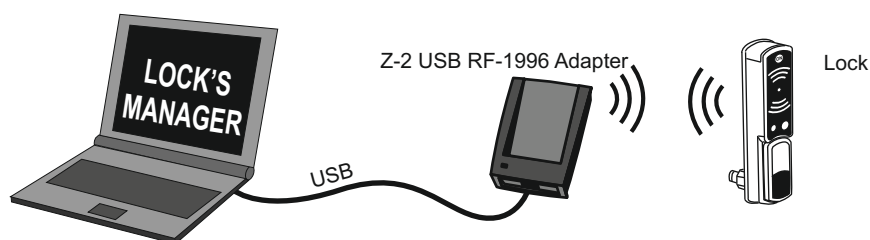
## 11. PROGRAMMING USING Z-2 USB RF-1996 ADAPTER AND LOCK'S MANAGER SOFTWARE

**Lock's Manager software** with an Z-2 USB RF-1996 adapter take care about configuration, setting up and subsequent operation of electronic furniture locks.

**Lock's Manager software** comprises two modules:

- **Edit Module:** configures and sets up electronic furniture locks and keys for further operations.
- **Manager Module:** takes care about day-to-day site operation. Manages keys, tracks attendance, oversees staff operations, provides periodic reports, monitors the used lockers numbers, provides the client info-kiosk function (reminds the locker number to the client, in case they forget), monitors battery levels in the locks, protects against fraudulent card cloning.

The software works only in **Logic Mode** and with Atmel (T5557) keys.



Programming works as follows:

- Install **Edit Module** onto a laptop (so can be carried around and taken to each lock for programming).
- Connect a **Z-2 USB RF-1996 adapter** to the laptop.
- Assign Master card(s).
- Approach the **Z-2 USB RF-1996 adapter** to the lock's reader, to store the selected operational mode and the Master card into that lock via contactless technology. The transmission takes 2...3 s after the laptop has been connected to the lock.



## 12. BATTERY DISCHARGE SIGNS AND REPLACEMENT.

The lock's battery will suffice for at least 20,000 openings, or to work 2.5 years in stand-by mode. The lock monitors the battery charge and informs the users when the battery need to be replaced:

### - Battery needs replacing.

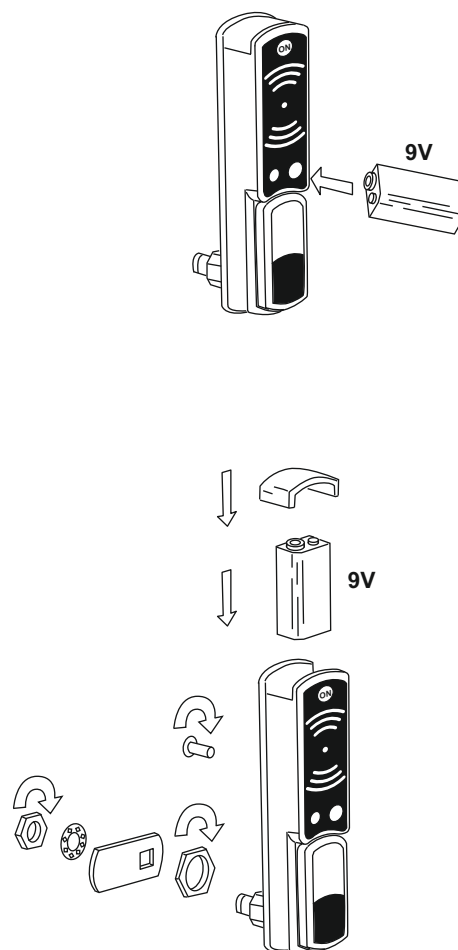
If when pressing ON button, no beep sounds but the lock is still working that lock's battery is almost discharged and needs replacing. If the battery could not be timely replaced and the lock lacks energy to open the locker, please use external power through provided contact pads, press ON button and approach a valid key. See Figure.

### - Battery fully discharged.

If when pressing ON button, no beep sounds, and the latch can't lock/unlock the lock it means that lock's battery is fully discharged.

### - Battery replacement.

The lock's electronics includes NVRAM for settings and keys, so they are not lost after battery replacement. To replace the lock's battery, please see Figure.



## 13. FIRMWARE UPDATE

Z-595 EHT lock firmware can be updated and changed. An Z-2 USB RF-1996 adapter and Lock's Manager software are required for it.

## 14. PACKAGE CONTENTS

- Lock: .....1;
- Sticker for the handle: .....1;
- Locking bars of different sizes:..... 2;
- Guide plankto the side wall (for chipboard lockers): ..1;
- Mounting kit: .....1.

## 15. OPERATING CONDITIONS

Ambient temperature: +5...40°C.

Humidity: ≤98% at 25°C.

When operating under non-recommended conditions, device parameters can deviate from specified values.

The device must be operated in absence of: precipitation, direct sunlight, sand, dust, and moisture condensation.

## 16. LIMITED WARRANTY.

This Device is covered by limited warranty for 24 months.

The warranty becomes void, if:

- this Manual's guidelines are not followed;
- the device has suffered physical damage;
- the device has visible traces of exposure to moist and/or aggressive chemicals;
- the device circuits have visible traces of tampering by unauthorised parties.

Under this warranty, the Manufacturer shall repair the device or replace any broken parts as required, free of charge, in cases where the fault is caused by a Manufacturer's defect.

## 17. CONTACTS

### European & Global Wholesale Distribution Center

IRONLOGIC SIA

Spilves. 16, Riga, LV-1055 Latvia

<http://ironlogic.me>

[info@ironlogic.lv](mailto:info@ironlogic.lv)

Phone: +371 292 37870



The symbol of crossed-through waste bin on wheels means that the product must be disposed of at a separate collection point. This also applies to the product and all accessories marked with this symbol. Products labeled as such must not be disposed of with normal household waste, but should be taken to a collection point for recycling electrical and electronic equipment. Recycling helps to reduce the consumption of raw materials, thus protecting the environment.

